

What is claimed is:

1. An intake air flow rate measuring device of an internal combustion engine, comprising a measurement structure that is attached to an intake pipe of the internal combustion engine so as to project into an intake passage and measures an intake air flow rate of the internal combustion engine, the measurement structure including:

an air inlet located in the intake passage on an upstream side;

an air outlet located in the intake passage on a downstream side;

a first passage extending from the air inlet to the air outlet;

a shunt plate extending in a direction that crosses an axis of the intake passage and having an edge that is adjacent to the first passage;

a second passage formed around the shunt plate to bypass the first passage; and

an air flow rate measuring element disposed in the second passage,

wherein the edge of the shunt plate is located on a imaginary line or distant from the imaginary line to the side of the second passage, in which the imaginary line is parallel to the axis of the intake passage and passing through a top end of the air inlet.

2. The intake air flow rate measuring device according to claim 1, wherein the second passage comprises an inlet-side passage extending in a direction that crosses the first passage, an internal passage that is bent from the inlet-side passage so as to extend approximately parallel with the axis of the intake passage, and an outlet-side passage that is bent from the internal passage and merges into the first passage.

3. The intake air flow rate measuring device according to claim 2, wherein the measurement structure includes a step portion that is adjacent to the intake passage so as to be opposed to the outlet-side passage of the second passage and to widen the first passage.

4. The intake air flow rate measuring device according to claim 2, wherein the measurement structure is attached to the intake pipe in such a manner that the internal passage of the second passage is located above the first passage.

5. The intake air flow rate measuring device according to claim 4, wherein the first passage extends approximately parallel with the axis of the intake passage and a top end of the air outlet is approximately at the same height as that of the air inlet.

6. The intake air flow rate measuring device according to claim 1, wherein the shunt plate has a branch that extends approximately parallel with the axis of the intake passage and forms an auxiliary air outlet of the second passage that is

separate from the air outlet of the measurement structure.

7. An intake air flow rate measuring device of an internal combustion engine, comprising a measurement structure that is attached to an intake pipe of the internal combustion engine so as to project into an intake passage and measures an intake air flow rate of the internal combustion engine, the measurement structure including:

- an air inlet located in the intake passage on an upstream side;

- an air outlet located in the intake passage on a downstream side;

- a first passage extending from the air inlet to the air outlet;

- a shunt plate having a plate-like portion extending in a direction that crosses an axis of the intake passage and an inclined portion that is continuous with the plate-like portion and projects into the first passage so as to be inclined toward the air outlet;

- a second passage formed around the shunt plate to bypass the first passage; and

- an air flow rate measuring element disposed in the second passage.

8. An intake air flow rate measuring device of an internal combustion engine, comprising a measurement structure that is attached to an intake pipe of the internal combustion engine

so as to project into an intake passage and measures an intake air flow rate of the internal combustion engine, the measurement structure including:

- an air inlet located in the intake passage on an upstream side;

- an air outlet located in the intake passage on a downstream side;

- a first passage extending from the air inlet to the air outlet;

- a shunt plate having a plate-like portion extending in a direction that crosses an axis of the intake passage and an inclined portion that is continuous with the plate-like portion, projects into the first passage so as to be inclined toward the air inlet, and has a through-hole extending parallel with the axis of the intake passage;

- a second passage formed around the shunt plate to bypass the first passage; and

- an air flow rate measuring element disposed in the second passage.